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10/520,732

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Yoji Ito

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EXAMINER

BRIGGS, NATHANAEL R

ART UNIT

PAPER NUMBER

2871

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/520,732

Applicant(s)

ITO ET AL.

Examiner

Nathanael R. Briggs

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2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/10/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 15-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 14 December 2006.

### ***Claim Objections***

2. Claims 1 and 8 are objected to because of the following informalities: Reference is made to "optical characters", where it should read, "optical characteristics". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito et al. (US 2003/0218709).**
5. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

6. Regarding claim 1, Ito discloses an LCD (see figures 4-8, for instance) having a liquid crystal cell (110) of bend alignment mode ([0056]) and a pair of polarizing plates (134A, 134B) provided on both sides of the cell (110), wherein at least one of the polarizing plates (131A, 133A, 134A) comprises a polarizing membrane (134) and an optical compensatory film (131A, 133A) positioned nearer to the liquid crystal cell (110) than the polarizing membrane (134), said optical compensatory film (131A, 133A) having at least two optically anisotropic layers (131A, 133A) comprising first (131) and second (133) optically anisotropic layers, said first optically anisotropic layer (131) being made from discotic compounds (131a-131e) oriented in hybrid alignment ([0047]), said second optically anisotropic layer (133) consisting of a cellulose ester film ([0025]), and said polarizing membrane (134) and said first (131) and second (133) optically anisotropic layers being so placed that the first optically anisotropic layer (131) giving in plane the maximum refractive index in a direction (RD) of essentially  $45^\circ$  ([0047]) to a transmission axis (TA) in plane of the polarizing membrane (134), and that the second optically anisotropic layer (133) gives in plane the maximum refractive index in a direction (SA) essentially parallel or perpendicular to a transmission axis (TA) in plane of the polarizing membrane (134), and wherein the liquid crystal cell of bend alignment mode (110) and the first (131) and second (133) optically anisotropic layers have optical characteristics satisfying the following formula (1) when measured at any wavelength of

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450 nm, 550 nm and 630 nm:  $0.05 < (\Delta \cdot n \cdot d) / (Re1 \cdot Rth2) < 0.20$  (1); (using the values  $\Delta \cdot n \cdot d = 501$ ;  $Re1 = 38$  nm;  $Rth2 = 95$  nm yields a  $(\Delta \cdot n \cdot d) / (Re1 \cdot Rth2) = 0.11$ ) in which  $\Delta \cdot n$  ([0484]; wherein  $\Delta \cdot n \cdot d$  lies between 500 to 15,000 nm) is an inherent birefringent index of rod-like liquid crystal molecules in the liquid crystal cell (110);  $d$  is a thickness of a liquid crystal layer (110) in the liquid crystal cell in terms of nm;  $Re1$  is a retardation value ([0454]; wherein  $Re1$  is 40 nm) in plane of the first optically anisotropic layer (131); and  $Rth2$  is a retardation value (Table 1; 110 nm) along a thickness direction of the second optically anisotropic layer (133). Claim 1 is therefore unpatentable.

7. Regarding claim 2, Ito discloses the LCD as defined in claim 1 (see figures 4-8, for instance), wherein the  $\Delta \cdot n \cdot d$  satisfies the following formula (2) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $100 \text{ nm} < \Delta \cdot n \cdot d < 1,500 \text{ nm}$ . (2) ([0484]). Claim 2 is therefore unpatentable.

8. Regarding claim 3, Ito discloses the LCD as defined in claim 1 (see figures 4-8, for instance), wherein the  $Re1$  satisfies the following formula (3) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $10 \text{ nm} < Re1 < 50 \text{ nm}$ . (3) ([0454]). Claim 3 is therefore unpatentable.

9. Regarding claim 4, Ito discloses the LCD as defined in claim 1 (see figures 4-8, for instance), wherein the  $Rth2$  satisfies the following formula (4) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $70 \text{ nm} < Rth2 < 400 \text{ nm}$ . (4) (Table 1). Claim 4 is therefore unpatentable.

10. Regarding claim 5, Ito discloses the LCD as defined in claim 1 (see figures 4-8, for instance), wherein the optical compensatory film gives retardation values  $Re(0^\circ)$  of

30 ± 10 nm (Table 5). Although Ito does not expressly disclose measured values of  $\text{Re}(40^\circ)$  and  $\text{Re}(-40^\circ)$  at 546 nm in the ranges of 50 ± 10 nm and 115 ± 10 nm, respectively, these properties would be presumed to be inherent in the invention of Ito, since the structure of the claimed invention is substantially identical to that disclosed by Ito (see MPEP § 2112.01). The values  $\text{Re}(0^\circ)$ ,  $\text{Re}(40^\circ)$  and  $\text{Re}(-40^\circ)$  are retardation values of the optical compensatory film when the retardation is measured, in a plane including the normal of the film and the direction in the film plane the minimum refractive index of the optical compensatory film, in the directions inclined at 0°, 40° and reversely 40° from the normal to the plane, respectively. Claim 5 is therefore unpatentable.

11. Regarding claim 6, Ito discloses the LCD as defined in claim 5 (see figures 4-8, for instance), wherein the direction (perpendicular to SA) giving in the film plane the minimum refractive index of the optical compensatory film is essentially at 45° to a longitudinal direction (RD) when the optical compensatory film is produced. Claim 6 is therefore unpatentable.

12. Regarding claim 7, Ito discloses the LCD as defined in claim 1 (see figures 4-8, for instance), wherein the optical compensatory film (131, 133) and the polarizing membrane (134) are laminated by attaching the film in the form of a roll to the membrane in the form of a roll ([0750]). Claim 7 is therefore unpatentable.

13. Regarding claim 8, Ito discloses an LCD of reflection type (see figures 1 and 4-8, for instance) having a reflection board ([0396]), a liquid crystal cell of hybrid alignment mode (4; [0397]) and a polarizing plate (9) in order, wherein the polarizing plate (9) comprises a polarizing membrane (9) and an optical compensatory film (8) positioned

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nearer to the liquid crystal cell (4) than the polarizing membrane (9), said optical compensatory sheet (8) having at least two optically anisotropic layers (131, 133) comprising first (133) and second (134) optically anisotropic layers, said first optically anisotropic layer (131) being made from discotic compounds (131a-131e) oriented in hybrid alignment ([0047]), said second optically anisotropic layer (133) consisting of a cellulose ester film ([0025]), and said polarizing membrane (134) and said first (131) and second (133) optically anisotropic layers being so placed that the first optically anisotropic layer (131) giving in plane the maximum refractive index in a direction (RD) of essentially  $45^\circ$  ([0047]) to a transmission axis (TA) in plane of the polarizing membrane (134), and that the second optically anisotropic layer (133) gives in plane the maximum refractive index in a direction (SA) essentially parallel or perpendicular to a transmission axis (TA) in plane of the polarizing membrane (134), and wherein the liquid crystal cell of hybrid alignment mode (4) and the first (131) and second (133) optically anisotropic layers have optical characteristics satisfying the following formula (5) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $0.025 < (\Delta \cdot n \cdot d) / (Re1 \cdot Rth2) < 0.10$  (5); (using the values  $\Delta n \cdot d = 501$ ;  $Re1 = 40$  nm;  $Rth2 = 110$  nm yields a  $(\Delta \cdot n \cdot d) / (Re1 \cdot Rth2) = 0.045$ ) in which  $\Delta n$  (where  $\Delta n \cdot d$  lies between 100 to 1,000 nm; [0400]) is an inherent birefringent index of rod-like liquid crystal molecules in the liquid crystal cell;  $d$  is a thickness of a liquid crystal layer (110) in the liquid crystal cell in terms of nm;  $Re1$  is a retardation value ([0454]; wherein  $Re1$  is 40 nm) in plane of the first optically anisotropic layer (131); and  $Rth2$  is a retardation value (Table 1; 110 nm) along

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a thickness direction of the second optically anisotropic layer (133). Claim 8 is therefore unpatentable.

14. Regarding claim 9, Ito discloses the LCD as defined in claim 8 (see figures 1 and 4-8, for instance), wherein the  $\Delta n \cdot d$  satisfies the following formula (6) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $50 \text{ nm} < \Delta n \cdot d < 750 \text{ nm}$ . (6) ([0400]). Claim 9 is therefore unpatentable.

15. Regarding claim 10, Ito discloses the LCD as defined in claim 8 (see figures 1 and 4-8, for instance), wherein the  $R_{e1}$  satisfies the following formula (7) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $10 \text{ nm} < R_{e1} < 50 \text{ nm}$ . (7) ([0454]). Claim 10 is therefore unpatentable.

16. Regarding claim 11, Ito discloses the LCD as defined in claim 8 (see figures 1 and 4-8, for instance), wherein the  $R_{th2}$  satisfies the following formula (8) when measured at any wavelength of 450 nm, 550 nm and 630 nm:  $70 \text{ nm} < R_{th2} < 400 \text{ nm}$ . (8) (Table 1). Claim 11 is therefore unpatentable.

17. Regarding claim 12, Ito discloses the LCD as defined in claim 8 (see figures 1 and 4-8, for instance), wherein the optical compensatory film gives retardation values  $R_e(0^\circ)$  of  $30 \pm 10 \text{ nm}$  (Table 5). Although Ito does not expressly disclose measured values of  $R_e(40^\circ)$  and  $R_e(-40^\circ)$  at 546 nm in the ranges of  $50 \pm 10 \text{ nm}$  and  $115 \pm 10 \text{ nm}$ , respectively, these properties would be presumed to be inherent in the invention of Ito, since the structure of the claimed invention is substantially identical to that disclosed by Ito (see MPEP § 2112.01). The values  $R_e(0^\circ)$ ,  $R_e(40^\circ)$  and  $R_e(-40^\circ)$  are retardation values of the optical compensatory film when the retardation is measured, in a plane

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including the normal of the film and the direction in the film plane the minimum refractive index of the optical compensatory film, in the directions inclined at  $0^\circ$ ,  $40^\circ$  and reversely  $40^\circ$  from the normal to the plane, respectively. Claim 12 is therefore unpatentable.

18. Regarding claim 13, Ito discloses the LCD as defined in claim 12 (see figures 1 and 4-8, for instance), wherein the direction giving in the film plane the minimum refractive index of the optical compensatory film is essentially at  $45^\circ$  to a longitudinal direction when the optical compensatory film is produced ([0045]). Claim 13 is therefore unpatentable.

19. Regarding claim 14, Ito discloses the LCD as defined in claim 8 (see figures 1 and 4-8, for instance), wherein the optical compensatory film and the polarizing membrane are laminated by attaching the film in the form of a roll to the membrane in the form of a roll ([0750]). Claim 14 is therefore unpatentable.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathanael R. Briggs whose telephone number is (571) 272-8992. The examiner can normally be reached on 9 AM - 5:30 PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathanael Briggs  
3/22/2007

  
ANDREW SCHECHTER  
PRIMARY EXAMINER